Fermi National Accelerator Laboratory

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Fermilab Library Directions *

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1. INTRODUCTION

In this document, we indicate our current thinking about the directions of the Fermilab Library. The ideas relate to the preprint management issue in a number of ways. The ideas are subject to revision as we come to understand what is possible as well as what is needed by the Laboratory community. This document should therefore be regarded as our personal view--the availability of off-the-shelf technology, of funding as well as feedback from the laboratory community about their needs will all affect how far we actually proceed in any of these directions.

As is well-known, Fermilab is predominantly a visitor-oriented laboratory. Although there are significant in-house efforts and collaborations, the main focus of the laboratory--both historically and presently--is provision of research facilities for collaborations of visiting researchers.

This aspect dictates then that some effort be made into providing laboratory facilities that can be used effectively even though one is remote from the laboratory. To do so, improves upon the efficiency with which experimenters and theorists may conduct their research--regardless of whether they are currently visiting the laboratory or are at their home institution.

It also relates to ability for the laboratory to deliver the research benefits back to the general vicinity of the taxpayers who supported the efforts. As a federally funded enterprise, anything which helps in this area is very worthwhile.

Even at the laboratory, individuals are becoming much more separated. Parking in the Central Laboratory area is a problem. Under these circumstances, it is expensive and wasteful to have individuals have to come to a central location to obtain needed information from the Library, etc. This is even more the case when they can not tell whether or not the desired item is present.

These considerations form the basis for much of our current directions with regard to the Fermilab Library. Our directions are as follows:

1. Make the Library a network resource so that its facilities may become available--regardless of whether, as a visitor, one is at home or at the laboratory and whether, as an employee, one is on the same floor or across the site.

2. Make the Library a platform from which one may access other network-available resources.

3. Make the Library a source for online full-text documents.

4. Close the loop between document production activities (e.g., Duplicating) and the document cataloging and provision activities (the Library).

We now discuss each of these directions in more detail.

2. A NETWORK RESOURCE

As discussed in a companion document concerning ongoing Library Projects, we are about to go "online" with our Library Automation System.

As a full-fledged library automation system, the system will provide us with all the traditional capabilities provided by automation systems in libraries much larger than ours: acquisitions, circulation, bibliographic database development and updating as well as online public access.

While this will be quite appreciated by patrons and staff alike, we have come to believe that the most significant aspect is that it will make the Library a network resource. Not only is there a trend in this direction around Fermilab with a variety of computing and information entities, but it also appears to be occurring more generally.

For example, we recently received a document which listed the Internet address of some twenty or more libraries--ranging (alphabetically by state) the University of California's online catalog to that from Virginia Polytechnic Institute. Libraries at Harvard, Princeton and others are of course included.

We have as well made the Fermilab library accessible via Internet--both for the benefit of our visitor population who can more easily reach us over that route and for the benefit of our own local UNIX-TCP/IP-based patrons. Our plan is to make a selected set of these Internet-available libraries available through a front-end menu on Fermilab's Library system.

Of course, past the basic TCP/IP connection almost every system is different in the way one gets access to the Public Access Catalog. We expect this to move in the direction of more uniformity over time. If, and when, Open Systems Interconnect becomes a reality, we expect to see more complete integration along the lines of what we are able to do now between DECnet-connected DRA Library Automation Systems.

3. AN ACCESS PLATFORM

As indicated in the companion document, Fermilab Library Projects, submitted to this workshop, we have been looking at the possibility of providing end user search capability to various online commercial databases. Initial tests appear to be quite successful.

The most thorny problem to solve is the charge-back one because of the substantial real money costs involved. The individuals with signature authority want to be able to place absolute limits on the funds expended; some would like to restrict the databases able to be searched.

Nevertheless, we expect to move in the direction of making the Library Automation computer a platform for accessing online commercial databases. Note that in fact the implementation may not be on the Library Automation computer but on some other one networked to the Library's. It is likely that the Library's will be the jumping off point to whatever facilities exist.

4. A SOURCE FOR FULL-TEXT ONLINE

An intriguing possibility is that of making the Library's system the mechanism whereby one accesses copies of documents in a "full-text {and graphics} online" fashion. We see this as a real possibility for the locally produced documents. These documents are in many cases the one's most frequently referenced and so form a cache of available online material. Further, the laboratory in almost all cases has "clear title" to them so that none of the copyright problems occur.

The thorny problems in this area are the business of "compound documents" (i.e., those with mixed text and graphics) and the mechanism of storage in a manner independent of the production mechanism. The wide variety of editor's, operating systems, and the like leads to difficulties. Any such storage system needs to make it possible to search the documents via a boolean keyword capability as well.

Nevertheless, this is an area we are examining.

5. CLOSING THE LOOP

A facinating direction is that of working towards "closing the loop" between the production of documents and the use of them. In a very abstracted sense in our environment, Duplicating produces the documents while the Library makes them available for use which then leads to the production of additional documents, etc., etc.

An acquisition under serious study (by another part of the Laboratory) is that of obtaining a duplicating machine which is connected to Ethernet. This duplicating machine accepts its documents in a Postscript format over TCP/IP to a front-end Sun Workstation where the Duplicating Operator schedules jobs to be run. Jobs are run and documents are produced.

The product comes with software for VAX/VMS, UNIX, PC, and MACINTOSH which allows the user to specify appropriate duplicating options (such as "stapled", "covers", etc.). In the VAX/VMS environment, DEC's Distributed Queue System product is used to allow the document to be shipped to a node having the TCP/IP software and thence to the Duplicating system.

Though there are many issues to be worked through, this device appears to offer the possibity of "capturing" any and all documents as they are produced. If the documents can be captured as a bundle consisting of mixed text/graphics (say, in DEC's DDIF format or similar compound document format), then one has the possibility of sending such a bundle off to the library for cataloging, storage, and electronic distribution at the time one is about to make a paper copy.

Obviously, there are issues of storage space, access time, and so on that must be worked through as well.

6. CONCLUSIONS

The directions we have discussed range from that almost implemented to the fanciful and speculative. It is our impression that there is a general convergence of technologies in the area of document/image storage, document/image catagorization, document searching, etc. We expect to see a lot of change in these areas in the years ahead.

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